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L3: Entry 1 of 1 File: USPT Nov 24, 1998

US-PAT-NO: 5840306
DOCUMENT-IDENTIFIER: US 5840306 A

TITLE: DNA encoding human papillomavirus type 18

DATE-ISSUED: November 24, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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US-CL-CURRENT: 424/192.1; 435/252.3, 435/325, 435/361, 435/69.1, 435/69.3, 435/69.7, 514/12, 514/14, 514/16, 514/2, 530/300, 530/324, 530/326, 530/328, 530/350, 530/402, 530/403

CLAIMS:

What is claimed is:

1. An isolated nucleic acid encoding the amino acid sequence of FIG. 1 (SEQ ID NO:2).

2. The nucleic acid according to claim 1 which is a DNA.

3. The DNA according to claim 2 which is shown in FIG. 1 (SEQ ID NO:1).

4. A vector comprising a nucleic acid encoding the amino acid sequence of FIG. 1 (SEQ ID NO:2).

5. A cell comprising the vector of claim 4.

6. An isolated nucleic acid encoding the amino acid sequence of FIG. 3 (SEQ ID NO:4).

7. The nucleic acid according to claim 6 which is a DNA.

8. The DNA according to claim 7 which is shown in FIG. 3 (SEQ ID NO:3).

9. A vector comprising a nucleic acid encoding the amino acid sequence of FIG. 3 (SEQ ID NO:4).

10. A cell comprising the vector of claim 9.

11. A process for expressing human papilloma virus type 18 protein in a host comprising:

(a) transforming a host cell with a vector comprising a nucleic acid encoding

the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4;

(b) culturing the host cell under conditions which allow expression of the protein from the vector.

12. A composition which induces an immune response in a subject treated with die composition, the composition comprising a nucleic acid encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 in a pharmaceutically acceptable carrier.

13. A method of inducing an immune response against an infection or disease caused by human papillomavirus 18 which comprises introducing into a susceptible animal a composition of claim 12.

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L2: Entry 1 of 1 File: USPT Oct 13, 1998

US-PAT-NO: 5820870
DOCUMENT-IDENTIFIER: US 5820870 A

TITLE: Recombinant human papillomavirus type 18 vaccine

DATE-ISSUED: October 13, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Joyce; Joseph G.	Lansdale	PA		
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US-CL-CURRENT: 424/204.1; 424/184.1, 424/186.1, 435/235.1, 435/254.2, 435/69.1, 435/69.3, 530/350, 530/412

CLAIMS:

What is claimed is:

1. Isolated or purified virus-like particles comprising recombinant Human Papillomavirus type 18 L1 protein having the amino acid sequence of SEQ ID No: 2.

2. The virus-like particles of claim 1 which further comprise recombinant L2 protein.

3. The virus-like particles of claim 1, wherein said particles are produced by expression of a recombinant nucleic acid encoding SEQ ID NO: 2.

4. The virus-like particles of claim 3, wherein said particles are produced by expression of a recombinant nucleic acid encoding SEQ ID NO: 1.

5. A vaccine comprising a pharmaceutically acceptable carrier and an immunoprotective amount of the virus-like particles of claim 1.

6. A vaccine comprising a pharmaceutically acceptable carrier and an immunoprotective amount of the virus-like particles of claim 2.

7. A method of preventing papillomavirus infection comprising administering the vaccine of claim 5 to a host.

8. A method of preventing papillomavirus infection comprising administering the vaccine of claim 6 to a host.

9. A method for producing the virus-like particles of claim 1, comprising:

(a) preparing a vector comprising a DNA molecule of SEQ ID NO:1;

(b) transforming a host cell with the vector of step (a) to produce a transformed cell;

(c) cultivating the transformed cell under conditions that permit production of recombinant human papillomavirus L1 protein; and

(d) purifying the protein under conditions that permit formation of the virus-like proteins.

10. A method of inducing an immune response in an animal comprising administering the virus-like particle claim 1 to the animal.

11. Isdated or purified virus-like particles comprised of recombinant human papillomavirus type 18 L1 protein, the L1 protein having amino acid R at position 30, amino acid N at position 88, amino acid R at position 283 and amino acid R at position 338.